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April 14, 2006

Mr. Dennis Breitzman, Area Manager
Bureau of Reclamation
Dakota Area Office
304 East Broadway
Bismarck, North Dakota 58502

Re: Minnesota Department of Health Comments on the Draft Environmental Impact Statement for the Red River Valley Water Supply Project

Dear Mr. Breitzman;

Following extensive review and coordination with other agencies of the State of Minnesota, the Minnesota Department of Health (MDH) offers the following comments to the Draft Environmental Impact Statement (DEIS) for the Red River Valley Water Supply Project (RRVWSP). MDH has taken the lead among MN State agencies for comments on the topic of aquifer storage and recovery (ASR). ASR is a component of at least four of the eight options subject of the DEIS. MDH's position on the other DEIS issues can be presumed to be generally consistent with the positions of other MN state agencies.

This letter will summarize the items that MDH seeks to have addressed in the final Environmental Impact Statement (EIS). We are also attaching an April 14, 2006 Memo stating technical comments about utilization of ASR in conjunction with the RRVWSP.

Issues that MDH would like to see addressed in further detail in the final EIS:

- 1) Since the development of ASR in the Red River Valley has not been done previously, it is imperative that pilot work and extensive testing and monitoring of the geochemistry of the storage aquifers be done. MDH believes that it is prudent to include much more detail in the EIS on the design and operation of the ASR proposals in order to fully evaluate the environmental impact on those aquifers.
- 2) The DEIS states that "...other difficult aspects of ASR include regulatory requirements and the establishment of rights to the stored water which are not addressed within the content of this document." MDH believes that since implementation of ASR for the Red River Valley will involve at least three Minnesota State Agencies, possibly three North Dakota State Agencies, two EPA regional offices and potential legislative involvement, it is appropriate to immediately identify a more specific ASR proposal and include a conceptual

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design, governance plan and estimated requirements for construction time and materials in the EIS.

- 3) A final statement in the DEIS discussion on the Moorhead ASR proposal states "Social and economic considerations may prove problematic..." without clearly stating what those social and economic considerations are. It is MDH's position that those social and economic considerations need to be clearly spelled out and included in the EIS.
- 4) Not connected to ASR, safe drinking water is best secured through a concerted effort to protect sources of drinking water as spelled out in the Safe Drinking Water Act. Source water protection was not discussed in the DEIS. MDH believes that it is important to identify the spill response plans for Lake of the Woods, the Pelican River, Ottertail Outwash et. al. aquifers, the Missouri River, Audubon Lake, McClusky Canal and the Sheyenne River areas. Additionally, the EIS should describe appropriate measures to address and manage potential contaminant sources such as feedlots, septic tanks, and other land use activities that could potentially degrade the quality of the water for drinking purposes for all options.

A memo containing technical comments regarding ASR is attached as a supplement to this letter.

Thank you for the opportunity to comment on the RRVWSP DEIS.

Sincerely,



John Linc Stine, Acting Director
Environmental Health Division
P.O. Box 64975
St. Paul, Minnesota 55164-0975

JLS/pc
Enclosure

Copy to: Lynda Boudreau, MDH Deputy Commissioner
Kent Lokkesmoe, MN DNR Waters
Will Haapala, MN PCA
Ron Harnack, BWSR

Memo



Date: April 14, 2006

To: John Linc Stine *JLS*
Acting Division Director
Environmental Health Division

From: Bruce Olsen
Supervisor, Source Water Protection Unit

Subject: MN Department of Health (MDH) Technical Comments Regarding the Draft EIS Pertaining to Aquifer Storage and Recovery (ASR)

Item 1 – Chemical Reactions Between the Injected Water and Groundwater May Result in Plugging of the Well Screen or Aquifer Materials.

The Minnesota Department of Health (MDH) agrees with the comments in the draft EIS that the effects of injecting treated surface water or groundwater into deeper aquifers be determined before large-scale ASR facilities would be constructed. The MDH recommends that the potential for plugging of the aquifer materials by the precipitation of iron or manganese be evaluated by laboratory testing before actual pilot testing with injection and recovery is undertaken. Injecting surface water or groundwater that has differing chemical or physical properties will result in changing the chemistry of the ambient groundwater. However, the degree to which this may affect the efficiency or even the practicality of storage or recovery is not known. Therefore, it is important to evaluate these potential impacts and their additional costs on pursuing ASR options before federal, state, and local funding is committed.

Item 2 – The Potential for ASR to Increase Existing Arsenic Levels in the Moorhead Aquifer.

Naturally occurring arsenic levels in the Moorhead aquifer already exceed the federal maximum contaminant level (MCL) for drinking water in some areas of the Red River valley in Minnesota. For example, the wells used city of Dilworth pump from this aquifer and have arsenic levels that are consistently above the MCL. Mixing of injected water and ambient groundwater is very likely to occur and the ambient groundwater in the deeper aquifer has potential to affect the quality of the water that is recovered.

The reaction between chemically reduced groundwater in the deeper aquifer and treated water containing oxygen may mobilize arsenic from aquifer materials and further increase arsenic levels. If so, the water that is recovered may have to be treated to remove the arsenic before it can be used for drinking water. This would increase treatment costs and affect the long-term costs of pursuing any water supply option that includes ASR. Also, increasing arsenic levels

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very likely will result in additional environmental review by the State of Minnesota to determine whether ASR presents an endangerment to others who use the Moorhead aquifer as their source of water supply.

Item 3 – ASR will Require Permitting and Environmental Monitoring.

The operation of an ASR facility in Minnesota will have to be permitted by 1) the MDH to meet well construction and public water supply regulations, 2) the Minnesota Pollution Control Agency to meet pollution prevention regulations, and 3) the Minnesota Department of Natural Resources to meet water use regulations. Furthermore, ASR is a type of underground injection that must be permitted by U.S. Environmental Protection Agency Region 5 because the state of Minnesota does not have primacy for federal underground injection control regulations. The four agencies are currently coordinating their permitting efforts on proposals for two other ASR projects in Minnesota. This experience has identified permitting requirements that will likely affect ASR as a water supply option in the Red River valley of Minnesota.

Generally, permitting of ASR will progress by first evaluating the environmental impacts of pilot testing at the proposed site(s). Long-term permitting for ASR in Minnesota would only occur if the initial results did not show any degradation of the groundwater or potential adverse impacts on other groundwater users. Permitting requirements will likely include the construction of monitoring wells and monitoring the effects on groundwater levels and the chemical impacts on groundwater quality. The costs associated with monitoring and reporting should be considered in determining the overall costs of using ASR in water supply options for the Red River valley in Minnesota.